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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,636	11/24/2003	Dong Woo Suh	5882P062	7699

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EXAMINER

JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,636

Applicant(s)

SUH ET AL.

Examiner

Kirsten C. Jolley

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 21, 2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claims 10 and 14, the limitation "wherein the recording layer comprises TbFeCo and wherein the sublayer comprises an alloy layer containing one of Fe, Co, and Ni; and another alloy layer comprising FePt" appears to be new matter. The Examiner could not find support for this limitation in the specification. Applicant stated that claims 10 and 14 were amended to incorporate the limitations of all the base claims and any intervening claims. However, as

Art Unit: 1762

previously written, claims 10 and 14 required only a single-layered sublayer which comprises FePt. The claims as currently written require a double-layered sublayer, one of which comprises FePt and the other comprising one of Fe, Co, or Ni, the disclosure of which could not be found in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 7, 10, 11, and 14, the phrase “high magnetic anisotropy” is vague and indefinite because “high” is a relative term of degree, and the metes and bounds of the claims are not known. The specification does not define the limits of “high magnetic anisotropy,” and one skilled in the art would not know if he/she is infringing the claim. The Examiner notes that the disclosure on page 12, lines 3-4, of the specification of an energy of about 7×10^7 erg/cm³ is only one *example* of a high magnetic anisotropy energy; even Applicant’s arguments state that the value is merely exemplary. There is no clear teaching or definition of what range of energies is covered by Applicant’s claim recitation of “high magnetic anisotropy” in the specification, i.e., what other values are also considered “high magnetic anisotropy”. Therefore it is the Examiner’s position that the metes and bounds of the claims remain unclear, and one skilled in the art would not know if they are infringing Applicant’s claims.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 7-9 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirokane et al. (US 5,863,649).

Hirokane et al. discloses a method for fabricating a magneto-optical storage medium comprising the steps of: forming a sublayer (reading-out layer 3) of GdFeCo which contains a transition metal (Fe); forming a recording layer 5 on which information is recorded and stored; and recording on the medium which includes a thermal treatment. Hirokane et al. discloses use of a high temperature to change the magnetization of the sublayer/reading-out layer in col. 4, lines 43-60, col. 7, line 67 to col. 8, line 2, col. 10, lines 42-46, and col. 11, lines 40-44; such a change in magnetization results from a change in crystalline structure of the layer. The magnetic anisotropy energy of the sublayer/reading-out layer 3 is coupled to the recording layer 5, as evidenced by col. 9, lines 37-40. As to claims 8-9 and 12-13, Hirokane et al. teaches that the recording layer 5 may be TbFeCo (col. 13, lines 1-3). In this case, the sublayer (reading-out layer 3) is made up of an alloy containing a transition metal used for the recording layer.

Response to Arguments

8. Applicant's arguments filed February 13, 2006 have been fully considered but they are not persuasive.

With respect to the 35 USC 112, 2nd paragraph rejections, Applicant argues that it is acceptable for the range covered by a claim term to be discerned from an exemplary embodiment provided within the specification, as in *Oakley, Inc. v. Sunglasses Hut International*. However, the Examiner notes that the details of the cited case are different than those in the instant invention. The specification and claims give no indication what range is intended by the claimed phrase "high magnetic anisotropy."

With respect to the rejections over the Hirokane reference, Applicant argues that Hirokane does not teach thermal treatment of reading-out layer 3 wherein the crystalline structure of reading-out layer 3 is changed into a crystalline structure that has a high magnetic anisotropy such that a high magnetic anisotropy energy of reading-out layer 3 is coupled to recording layer 5. Applicant also argues that "some kind" of structure change does not teach a crystalline structure that has a high magnetic anisotropy.

The Examiner maintains that, since the limits of the phrase "high magnetic anisotropy energy" are unknown and "high" is a relative term of degree, and because the limits of the claimed phrase are not defined in the specification (as discussed in the 35 USC 112 rejection), the phrase is broad and the magnetic anisotropy of Hirokane's sublayer is "high." Further, it is the Examiner's position that crystalline structure change must occur when the magnetization direction changes. The magnetization direction changes as a result of heating in Hirokane's reference. Since the heating does not cause the compound to change chemically (i.e., the chemical formula does not change), the magnetization direction change must be due to a

Art Unit: 1762

structural/physical change. Hirokane states that there is in-plane magnetic anisotropy in col. 9, line 16. Thus, the process of Hirokane meets the broad limitation of “a crystalline structure that has a high magnetic anisotropy.

Applicant also argues that even if “some kind” of crystalline structure change occurs in Hirokane, it is certainly not one which results in the crystalline structure having a high magnetic anisotropy as the phrase is used in claims 7 and 11. However, as discussed above, the phrase as used in claims 7 and 11 is indefinite and the metes and bounds are unclear, therefore the claim is interpreted broadly.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1762

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj